

## 1.2 ProMinent® Gamma X Metering Pumps

### 1.2.1 ProMinent® Gamma X

#### Solenoid Diaphragm Metering Pump gamma/ X

The proven best-seller intelligently extended

CAPACITY RANGE 2.3 – 45 L/H, 25 – 2 BAR

The solenoid diaphragm metering pump gamma incorporates a wealth of eXcellent ingenuity! With integrated pressure measurement, it ensures the smooth running of your metering process. The gamma/ X is ideal for all metering work involving liquid media.

The new solenoid diaphragm metering pump gamma/ X is user-friendly and, just like its predecessor, has an outstandingly long service life. An ingenious solenoid control measures the back pressure and protects the system from overload. This technology makes a pressure sensor superfluous, meaning that operating safety can be significantly increased.

No additional parts come into contact with the feed chemical, there are no additional sealing surfaces and no electronic components come into contact with the feed chemical. Whether the metering volume fluctuates or hydraulic failures affect the metering process – the gamma/ X keeps everything at your fingertips.

It independently ensures a trouble-free metering process and, should the pump ever need maintenance, its service module draws attention to this.



#### Benefits

- Simple adjustment of the capacity directly in l/h
- Trouble-free processes by the detection of hydraulic malfunctions or blocked discharge lines
- Integrated pressure measurement and display for greater safety during commissioning and in the process
- Adaptation to existing signal transducers by external control via potential-free contacts with pulse step-up and step-down
- External control via 0/4-20 mA standard signal with adjustable assignment of signal value to stroke rate
- Integrated 7-day timer for timed metering tasks
- Guaranteed metering by means of automatic bleeding
- Connection to process control systems via bus interfaces, such as Profinet, PROFIBUS, CAN bus, others on request
- Organise work processes conveniently with the optional process timer. The alternative to a timer or PLC
- Virtually wear-free solenoid drive, overload-proof and economical
- Suitable for continuous micro-metering from 2 ml/h thanks to the regulated solenoid drive

#### Technical details

- Available material combinations: PP, PVDF, clear acrylic, PTFE and stainless steel
- Special dosing head designs for gaseous and high-viscosity media
- Illuminated LC display and 3-LED display for operating, warning and error messages, visible from all sides
- Factor with external contact control 99:1 - 1:99
- Batch operation with max. 65,536 strokes/start pulse
- Input concentration for simple adjustment with volume-proportional metering tasks
- Stroke rate adjustment in 1 stroke/hour increments from 0 to 12,000 strokes/h
- Continuous electronic stroke length adjustment from 0 - 100% (recommended 30 - 100%)
- Connector for 2-stage level switch
- External control via 0/4-20 mA standard signal with adjustable assignment of signal value to stroke rate
- Optional 4-20 mA output for remote transmission of stroke length and stroke rate
- Universal power supply unit 100 V - 230 V, 50/60 Hz
- Optional 230 V relay module, can also be easily and reliably retrofitted
- Optional 24 V combined relay, can also be easily and reliably retrofitted

#### Field of application

Can be integrated into automated processes and used in all industries. The pump can work as a control unit with the process timer, for example in cooling water treatment.

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## 1.2.2 Technical Data & Materials for Gamma X

pump type gamma/ X	Delivery rate at max. back pressure			Number of Strokes	Connection Size OD x ID	Suction Lift	Shipping Weight PP, NP	SS
	bar	l/h	ml/stroke	Strokes/ min	mm	PV, TT mWC	kg	kg
GMXa 1602	16	2.30	0.19	200	6 x 4	6.0**	3.6	4.1
GMXa 1604	16	3.60	0.30	200	6 x 4	5.0**	3.6	4.1
GMXa 0708	7	7.60	0.63	200	8 x 5	4.0**	3.7	5.0
GMXa 0414	4	13.50	1.13	200	8 x 5	3.0**	3.7	5.0
GMXa 0220	2	19.70	1.64	200	12 x 9	2.0**	3.7	5.0
GMXa 2504	25	3.80	0.32	200	(6x4 suction) 8 x 4***	4.0**	4.9	5.5
GMXa 1009	10	9.00	0.75	200	8 x 5	3.0**	5.1	6.5
GMXa 0715	7	14.50	1.21	200	8 x 5****	3.0**	5.1	6.5
GMXa 0424	4	24.00	2.00	200	12 x 9	3.0**	5.1	6.5
GMXa 0245	2	45.00	3.70	200	12 x 9	2.0**	5.2	7.0
<b>gamma/ X metering pumps with self-bleeding head without bypass (SER) PVT7</b>								
GMXa 1602	10	0.90	0.08	200	6 x 4	1.8**	3.6	-
GMXa 1604	10	1.60	0.13	200	6 x 4	1.8**	3.6	-
GMXa 0708	7	5.70	0.48	200	8 x 5	1.8**	3.7	-
GMXa 0414	4	12.00	1.00	200	8 x 5	1.8**	3.7	-
GMXa 0220	2	17.40	1.45	200	12 x 9	1.8**	3.7	-
GMXa 1009	10	6.00	0.50	200	8 x 5	1.8**	5.1	-
GMXa 0715	7	12.90	1.08	200	8 x 5	1.8**	5.1	-
GMXa 0424	4	19.20	1.60	200	12 x 9	1.8**	5.1	-
<b>gamma/ X metering pumps with auto bleed (SEK) NPB9</b>								
GMXa 1602	10	1.3	0.11	200	6 x 4	2.1**	3.6	-
GMXa 1604	10	2.4	0.21	200	6 x 4	2.7**	3.6	-
GMXa 0708	7	6.8	0.57	200	8 x 5	2.0**	3.7	-
GMXa 0414	4	12.0	1.00	200	8 x 5	2.0**	3.7	-
GMXa 0220	2	18.0	1.50	200	12 x 9	2.0**	3.7	-
GMXa 1009	10	8.0	0.67	200	8 x 5	3.0**	5.1	-
GMXa 0715	7	13.5	1.12	200	8 x 5	2.5**	5.1	-
GMXa 0424	4	20.0	1.67	200	12 x 9	2.5**	5.1	-

**Note:** Gamma/ X metering pumps with dosing heads for high-viscosity media have a 10 – 20% lower capacity, and are not self priming.

\* The given performance data represents guaranteed minimum values, calculated using water as the medium at room temperature.

\*\* Suction lift with a filled dosing head and filled suction line, with a self-bleeding dosing head with air in the suction line.

\*\*\* With stainless steel design 6 mm connector width.

\*\*\*\* With stainless steel design 12 mm connector width.

All data refers to water at 20 °C.

### Materials in contact with the medium

Dosing head	Suction/pressure	Connector	Ball seat	Seals	Balls
PPT	Polypropylene	Polypropylene	PVDF	PTFE	Ceramic
NPT	Clear acrylic	PVC	PVDF	PTFE	Ceramic
PVT	PVDF	PVDF	PVDF	PTFE	Ceramic
TTT	PTFE with carbon	PTFE with carbon	Ceramic	PTFE	Ceramic
SST	Stainless steel material no. 1.4404	Stainless steel material no. 1.4404	Ceramic	PTFE	Ceramic

Self-bleeding design only in material designs PP and NP with a valve spring made of Hastelloy C and a PVDF valve insert. Diaphragm with a PTFE coating.

FKM = fluorine rubber

Metering reproducibility: ±2% when used according to the operating instructions

Permissible ambient temperature: -10 °C to +45 °C

**Mean power consumption:** 24/30 W

**Degree of protection:** IP 65, insulation class F

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## 1.2.3 Identity Code & Pricing for Gamma X

GMXa	Type	PPT2	NPT2	NPB2	NPB9	PVT0	PVT2	PVT4	PVT7	TTT0	SST0
	1602, 1604 0708, 0414, 0220 2504 ** 1009, 0715, 0424 0245										
<b>Liquid end/valve material</b>											
	PP Polypropylene/PVDF, with self-bleeding design polypropylene										
	NP Clear acrylic/PVDF, with self-bleeding design clear acrylic/PVC										
	PV PVDF/PVDF										
	TT PTFE/PTFE										
	SS Stainless steel 1.4404/1.4404										
<b>Seal/diaphragm material</b>											
	T PTFE/PFTE coated										
<b>Liquid end version</b>											
	0 Non-bleed version, no valve spring <i>only with NP, TT and SS and type 0245</i>										
	1 Non-bleed version, with valve spring <i>only with NP, TT and SS and type 0245</i>										
	2 Bleed function, no valve springs <i>only with PP, PV, NP * not for type 0245 *</i>										
	3 Bleed function, with valve springs <i>only with PP, PV, NP * not for type 0245 *</i>										
	4 HV version for highly viscous media with valve spring <i>* not for types 1602 and 0245 *</i>										
	7 self-bleeding without bypass (SER), <i>only with NPT and PVT* not for types 2504 and 0245 *</i>										
	9 self-bleeding without bypass (SEK), <i>only with NPB not for types 2504 and 0245 *</i>										
<b>Hydraulic connections</b>											
	0 Standard according to technical data										
	5 Discharge side connection for hose 12/6, suction standard, only PP, NP, PV										
	9 Discharge side connection for hose 10/4, suction standard, only PP, NP, PV										
<b>Diaphragm rupture indicator</b>											
	0 Without diaphragm rupture indicator										
	1 With diaphragm rupture indicator, optical sensor, <i>electrical signal not for 0245</i>										
<b>Version</b>											
	0 Standard										
<b>Logo</b>											
	0 with ProMinent® logo										
<b>Power supply</b>											
	U 100-230V, ±10 %, 50/60 Hz										
<b>Cable and plug</b>											
	C 2 m Australian										
<b>Relay, pre-set to</b>											
	0 No relay										
	1 1 x changeover contact 230V – 2 A, fault indicating relay N/C										
	4 2 x N/O 24V – 100 mA, as 1 + pacing relay										
	C 1 x N/O 24V – 100 mA, as 1 + 4 – 20 mA output										
	F Automatic degassing solenoid 240v - ***										
	G Automatic degassing solenoid 24v DC + Relay output										
<b>Accessories</b>											
	0 No accessories										
	1 Tube FV & IV - <i>NOT for PTFE, SS or HV</i>										
<b>Control version</b>											
	0 Manual + ext. 1:1 & pulse control										
	3 Manual + ext. & pulse control + analogue 0/4 - 20 mA										
	C such as 3 + CANopen										
	D such as 3 + CANopen										
	R as 3 + PROFIBUS® DP interface										
<b>Metering monitor</b>											
	0 Pulse signal input										
<b>Remote Stop</b>											
	0 without Bluetooth										
	B with Bluetooth										
<b>Language</b>											
	EN English										
	P = Prepack										

**Note:** \*\* 2504 pump supplied with 2 off 8x4 tube nozzles & clamp rings, & 5.0 m of 8x4 PTFE tube.

**Note:** Relays type F & G can **ONLY** be fitted to pumps with PPT2, NPT2 and PVT2 Liquid Ends

**Note:** If PROFIBUS® is specified refer to page 3.20 to determine which PROFIBUS® cables, adaptors and terminators are required. Also if PROFIBUS® option is selected NO relays can be fitted.

**Prepacks = P\***  
**P0** - includes 5m of delivery and 2m suction tube a CANbus cable, if specified.  
**P2** - includes 5m of delivery and 2m suction tube a 2m Control Cable if required.  
**P5** - as P2 but with 5m control Cable  
**PX** - as P2 but with 10m control Cable  
**Note:** 1602, 1604, pumps are supplied with 5.0m PTFE tube, other tube is available on request.

GMXa 0708 PV T 2 0 1 0 0 U C 0 0 1 3 0 0 EN P\*

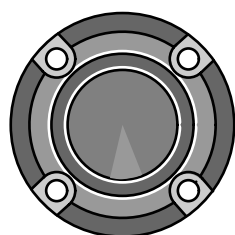
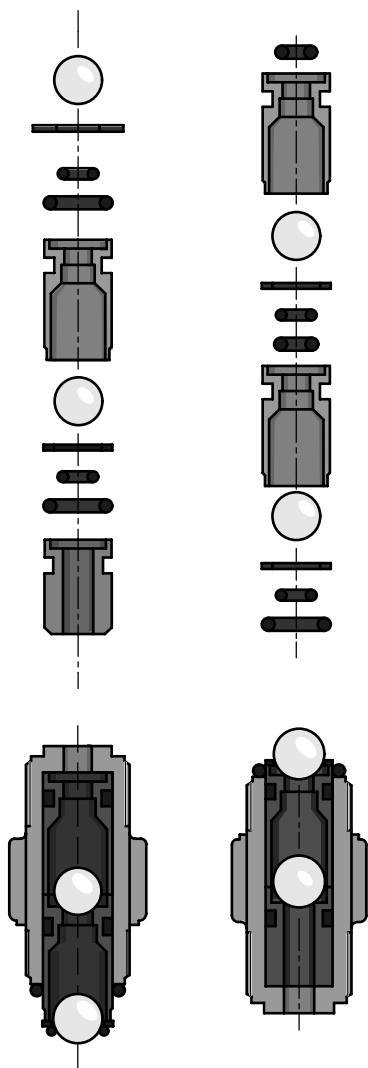
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## 1.2.4 Accessories Spare Part Sets Gamma X

Spare parts kits for gamma/ X, consisting of:

- 1 x diaphragm
- 1 x suction valve, complete
- 1 x discharge valve, complete
- 1 x connector set

**Note:** Suction and discharge valve set not included with stainless steel version.



### Spare Parts Kit for gamma/ X

Type	Materials in contact with the medium	Part No.	
Type 1602	PVT2, PPT, NPT2	1023109	
	NBP2	1001723	
	NBP9	1001667	
	TTT	1001739	
	SST	1001731	
	Type 1604 and Type 2504	PVT2, PPT, NPT2	1035332
		NBP2	1039986
		NBP9	1035334
PVT4		1035342	
	TTT	1035330	
	SST	1035331	
	Type 0708 and Type 1009	PVT2, PPT, NPT2	1023111
		NPB2	1001725
NPB9		1001669	
PVT4		1019067	
	TTT	1001741	
	SST	1001733	
	Type 0414 and Type 0715	PVT2, PPT, NPT2	1023112
		NPB2	1001726
NPB9		1001670	
PVT4		1019069	
	TTT	1001742	
	SST	1001734	
	Type 0220 and Type 0424	PVT2, PPT, NPT2	1051129
		NPB2	1051107
NPB9		1051113	
PVT4		1051134	
	TTT	1051151	
	SST	1051139	
	Type 0245	PVT2, PPT	1051130
		NPB2	1051108
TTT		1051152	
SST		1051140	

### Spare Diaphragm for Product Range gamma/ X

Type	Materials in contact with the medium	Part No.
Type 1602	all materials	1000246
Type 1604 and Type 2504	all materials	1034612
Type 0708 and Type 1009	all materials	1000248
Type 0414 and Type 0715	all materials	1000249
Type 0220 and Type 0424	all materials	1045456
Type 0245	all materials	1045443

## 1.2 ProMinent® Gamma X Metering Pumps

### 1.2.5 ProMinent® Gamma X Metering Pumps with SER

Spare parts kits for gamma/ L with self-bleeding Dosing Head without bypass, consisting of:

- 1 x diaphragm
- 1 x suction valve, complete
- 1 x discharge valve, complete
- 1 x bleed valve, complete
- 1 x connector set

### Materials in contact

Type	with the medium	Part No.
Type 1602	PVT7, NPT7	1047830
Type 1604	PVT7, NPT7	1047858
Type 0708 and Type 1009	PVT7, NPT7	1047832
Type 0414 and Type 0715	PVT7, NPT7	1047833
Type 0220 and Type 0424	PVT7, NPT7	1051111